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(51) INT CL<sup>4</sup>

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B8T 120C 13B WH

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None

(58) Field of search

B8T

Selected US specifications from IPC sub-class B65D

(54) Beaker

(57) A beaker has a lid 20 with a spout at one side. The lid is retained on the beaker by a push-and-twist connection. A cam surface 16 on the beaker is engageable by a follower 28 on the lid such that rotation moves the lid axially from a closed configuration (Figure 2), in which a seal 30 is engaged between the lid and the mouth of the beaker, to a drinking configuration (Figure 3) in which the end face of the lid is spaced from the beaker's mouth, leaving a gap for liquid to flow through the spout.

A case comprises an aperture for snugly housing a closed beaker and optionally one or more apertures for food containers having recesses for housing spoons.

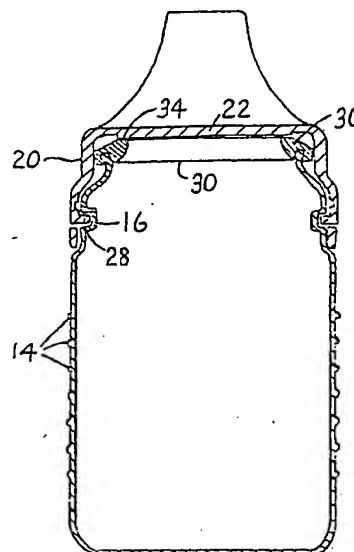


Fig 2

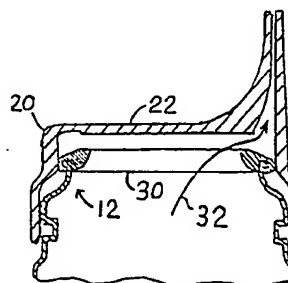


Fig 3

GB 2 190 073 A

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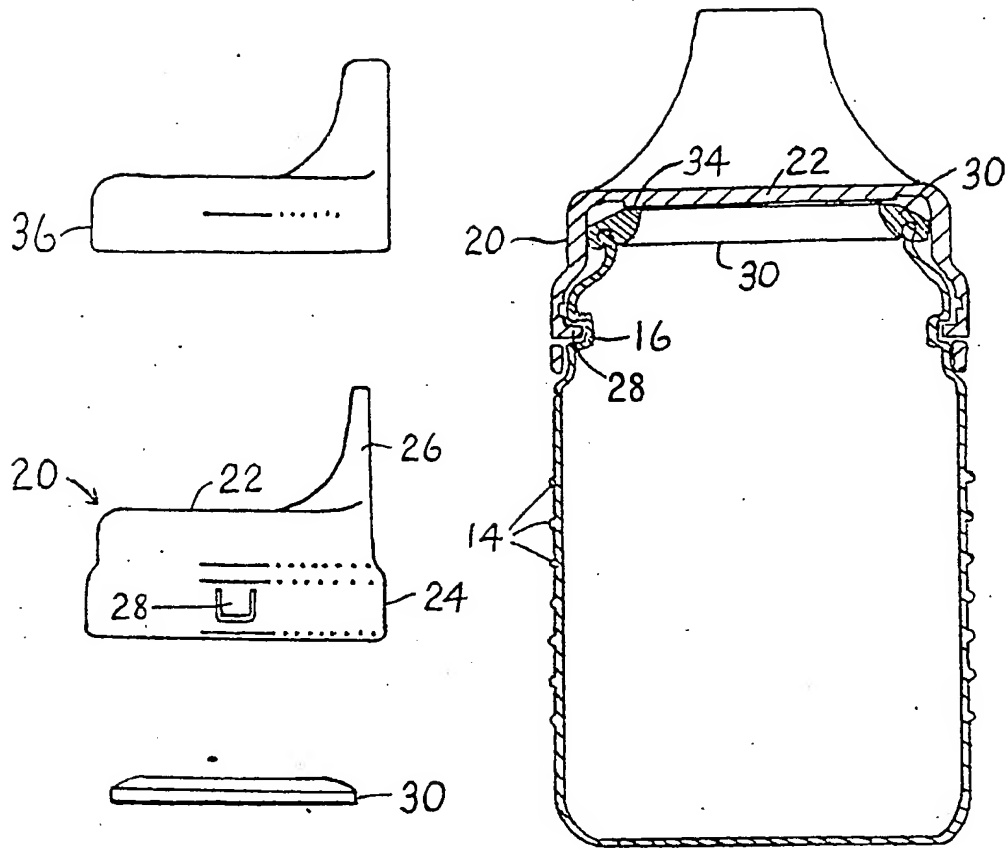


Fig 2

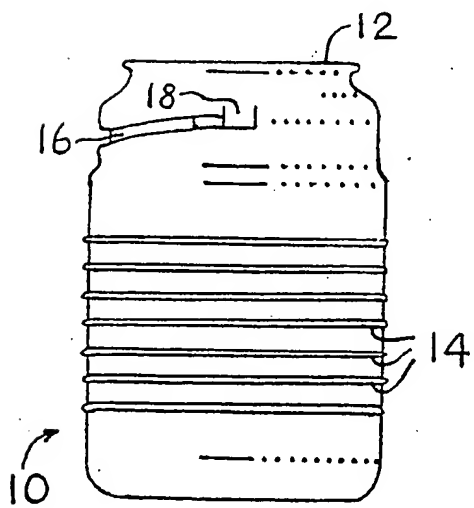


Fig 1

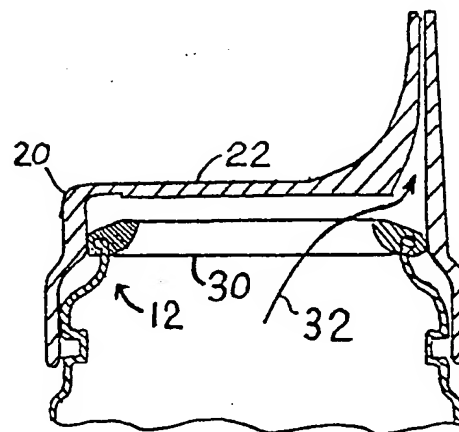


Fig 3

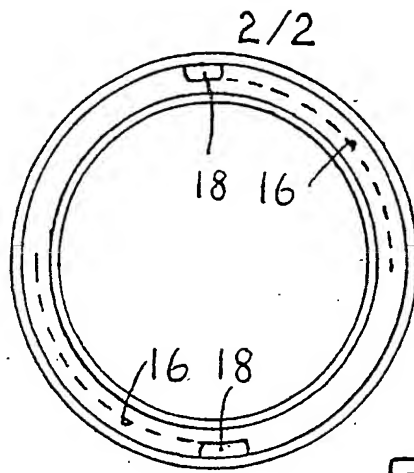


Fig 4

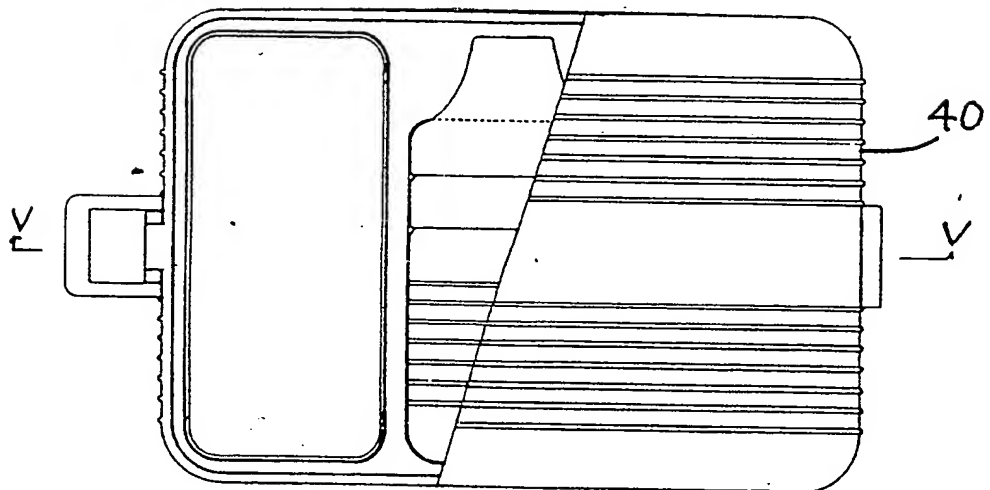


Fig 5

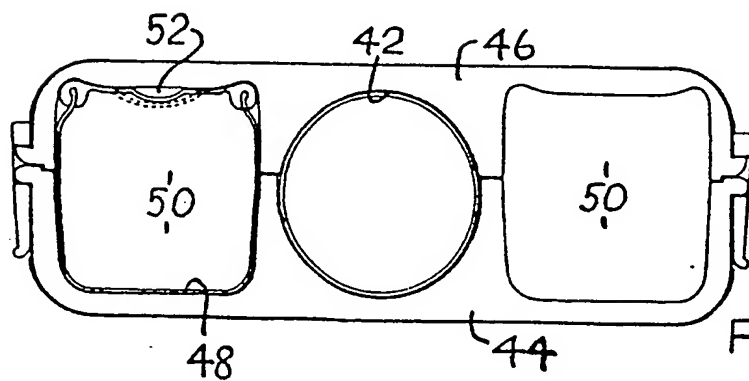


Fig 6

## SPECIFICATION

## Beaker

5 The present invention relates to a beaker, and particularly to a closeable beaker for a young child. In another aspect it relates to a portable feeding assembly including such a beaker and a case for holding it.

10 There are many designs of trainer beaker which are intended to be closeable, but the general experience is that they tend to be leaky. Most have a cup body and a separate lid. Ideally these would be engageable together simply by a parent, and not

15 easily disengageable by a child.

According to the present invention there is provided a beaker assembly comprising a cup body and a lid having a tubular drinking spout; the body and lid being mutually engageable by formations such that rotation of the lid causes axial displacement relative to the body between a drinking configuration in which the cup interior communicates with the spout; and a closed configuration in which the spout is closed off from the cup interior. Suitably the lid has a sealing surface which, in the closed configuration, seals to the mouth of the cup and closes off the spout; and which surface, in the drinking configuration, is spaced from the cup mouth. There is preferably a sealing ring arranged to seal between the sealing surface of the lid and the mouth of the body. This may be mounted to the body or to the lid. The engagement formations of the lid and body may constitute a cam surface and a cam follower.

35 We may also provide a case having a cavity for snugly housing a beaker comprising a body and an attached lid.

An embodiment of the invention will now be described in greater detail with reference to the accompanying drawings in which:

40 *Figure 1* is an exploded view in elevation of a beaker assembly consisting of a cup body, a sealing ring, a lid, and a cover;

*Figure 2* is a vertical section on a larger scale of the assembly in closed configuration;

45 *Figure 3* is a similar view showing the drinking configuration;

*Figure 4* is a plan view of the beaker;

50 *Figure 5* is a view showing a case, with the lid partly cut away; and

*Figure 6* is a section on V-V in *Figure 5*.

The beaker 10 (which may also be referred to as a cup or bottle) is a generally cylindrical vessel which narrows adjacent its open mouth 12. It is made of a tough plastics material, suitably a polycarbonate. Its body has a pattern of ribs 14 for easy handling. Adjacent the mouth 12 there are a pair of cam surfaces 16, at diametrically opposed regions. As can be seen from *Figure 4*, each extends for about a quarter of the circumference. Each is a channel, recessed into the beaker. The channel has an opening 18 at one end. Away from this opening 18, it diverges from the mouth 12. (In an alternative construction, the channel continues on the other side of the opening 18, converging towards the mouth

12.) The lid 20 may be a polypropylene moulding. It is generally cup-shaped, having a base wall 22 and a stepped peripheral wall 24. A flattened tubular spout 26 projects from one side. The wider, mouth portion of the peripheral wall 24 has a pair of inward projections 28 to serve as cam followers. These are engageable with the cam channel 16, by passage through the openings 18. Rotation of the lid 20 then draws it down onto the beaker 10.

70 A sealing ring 30, suitably of a synthetic rubber, may engage over the mouth of the beaker 10, as can be seen in *Figures 2* and *3*. *Figure 3* shows the drinking configuration which results when the ring 30 is engaged with the mouth 12, and the lid 20 is engaged, and rotated slightly so that the projections 28 are slightly within the cam channels 16. The cam channels may have formations such that there is click engagement into the drinking configuration. (With the alternative arrangement previously described, this may be when the followers are in the extension of the channel on the second side of the openings 18.) The arrow 32 shows the path for liquid, over the sealing ring 30 and out through the spout 26. When the lid 20 is rotated fully clockwise, the locking configuration shown in *Figure 2* is achieved. Once again, there may be click-engagement. It can be seen that the end wall 22 of the lid 20 provides a sealing surface 34 which seals against the ring 30, thus isolating the beaker interior from the spout.

95 In this configuration, the beaker assembly is reliably watertight. To keep it hygienic, a cover 36, suitably also formed of polypropylene, may be engaged over it. It may then be stored in a case 40 as shown in *Figures 5* and *6*. This has a recess 42, formed partly in the case body 44 and partly in the case lid 46, which positively engages the beaker assembly. There may be further apertures 48 for snugly holding food containers 50. A food container 50 may have a recess 52 for holding a spoon when it is within the case 40.

100 The mode of engagement of the lid and the beaker is very simple and reliable. The bayonet-type connection is much simpler to use than a thread, for threads between plastics components are notorious for cross-threading and other problems.

## CLAIMS

1. A beaker assembly comprising a cup body and a lid having a tubular drinking spout; the body and lid being mutually engageable by formations such that rotation of the lid causes axial displacement relative to the body between a drinking configuration in which the cup interior communicates with the spout; and a closed configuration in which the spout is closed from the cup interior.

2. A beaker assembly according to claim 1 in which the lid has a sealing surface which, in the closed configuration, seals to the mouth of the cup and closes off the spout; and which surface, in the drinking configuration, is spaced from the cup mouth.

3. A beaker assembly according to claim 2 in which the spout is adjacent the periphery of the sealing surface.

4. A beaker assembly according to claim 2 or 3 including a sealing ring arranged to seal between the sealing surface of the lid and the mouth of the body.
5. A beaker assembly according to claim 4 wherein the sealing ring is mounted to the body.
6. A beaker assembly according to claim 4 wherein the sealing ring is mounted to the lid.
7. A beaker assembly according to any preceding claim wherein the engagement formations of the lid and body constitute a cam surface and a cam follower.
8. A beaker assembly according to claim 7 wherein the cam surface is provided by channel means extending part-circumferentially and diverging from the mouth of the body.
9. A beaker assembly according to claim 8 wherein the cam follower comprises a projection slidable along the channel means; the channel means having an opening to allow disengagement of the projection to permit disconnection of the lid and body.
10. A beaker assembly according to claim 9 wherein the opening is at an intermediate region of the channel means, between portions corresponding to the drinking and closed configurations respectively.
11. A beaker assembly according to any preceding claim further including a cover releasably engageable over the lid to protect the spout.
12. A beaker assembly according to any preceding claim further including a case having a cavity for snugly housing a beaker comprising a body and an attached lid.
13. A beaker assembly according to claim 12 wherein the case has at least one further cavity for a food container.
14. A beaker assembly according to claim 13 wherein the further cavity snugly contains a food container.
15. A beaker assembly according to claim 14 wherein the food container has a recess in which a spoon is housed.
16. A beaker assembly substantially as herein described with reference to and as illustrated in Figures 1 to 4 or Figures 1 to 6 of the accompanying drawings.